

Guia de instalação do ISR-WAAS no roteador ISR 4000 Series

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Introduction

Este documento descreve o guia de instalação do Cisco ISR-WAAS no Cisco Integrated Services Router (ISR). É a implementação do Wide Area Application Services (vWAAS) virtual em um Cisco ISR.

O ISR-WAAS é implantado dentro de um contêiner IOS-XE. Um contêiner nesse contexto se refere ao hipervisor que executa aplicativos virtualizados em um roteador Cisco ISR 4000 Series.

Pré-requisitos de instalação do ISR-WAAS

Cada versão do software WAAS pode ter diferentes requisitos de recursos (Memória, CPU e Unidades de Estado Sólido (SSD)), caso você não atenda aos requisitos, isso pode levar a problemas de desempenho ou até mesmo erros durante a instalação.

Leia o guia de configuração neste link:

<https://www.cisco.com/c/en/us/support/routers/virtual-wide-area-application-services-waas/products-installation-and-configuration-guides-list.html>

Esta tabela resume os requisitos de recursos e as plataformas ISR suportadas para cada modelo ISR.

ISR-WAAS Model	CPUs	Memory	Disk Storage	Supported ISR Platform
ISR-WAAS-200 (for WAAS 5.x and 6.2.1)	1	3 GB	151 GB	ISR-4321
ISR-WAAS-200 (for WAAS 6.2.3x and later)	1	4 GB	151 GB	ISR-4321
ISR-WAAS-750	2	4 GB	151 GB	ISR-4351, ISR-4331, ISR-4431, ISR-4451
ISR-WAAS-1300	4	6 GB	151 GB	ISR-4431, ISR-4451
ISR-WAAS-2500	6	8 GB	338 GB	ISR-4451

Diferença entre NIM-SSD e ISR-SSD

NIM-SSD

NIM-SSD é o que está localizado fora do ISR e pode ser trocado a quente.

```
NAME: "NIM subslot 0/3", DESCR: "NIM SSD Module"
PID: NIM-SSD , VID: V01, SN: F0C1915299D
```

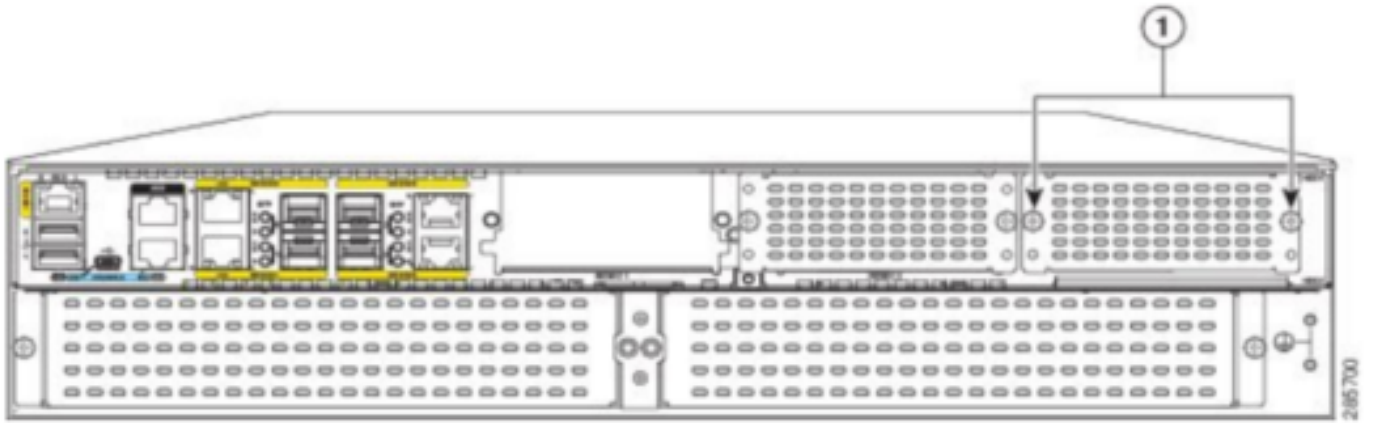
Este é um módulo que é instalado em um dos módulos de interface de rede (NIM) disponíveis dos roteadores ISR.

Estes são PIDs (Product Identifiers — Identificadores de Produto) para NIM-SSD e SSD que podem ser usados para aumentar a RMA:

```
NIM-SSD(=)NIM Carrier Card for SSD drives
SSD-SATA-200G(=)200 GB, SATA Solid State Disk for NIM-SSD
```

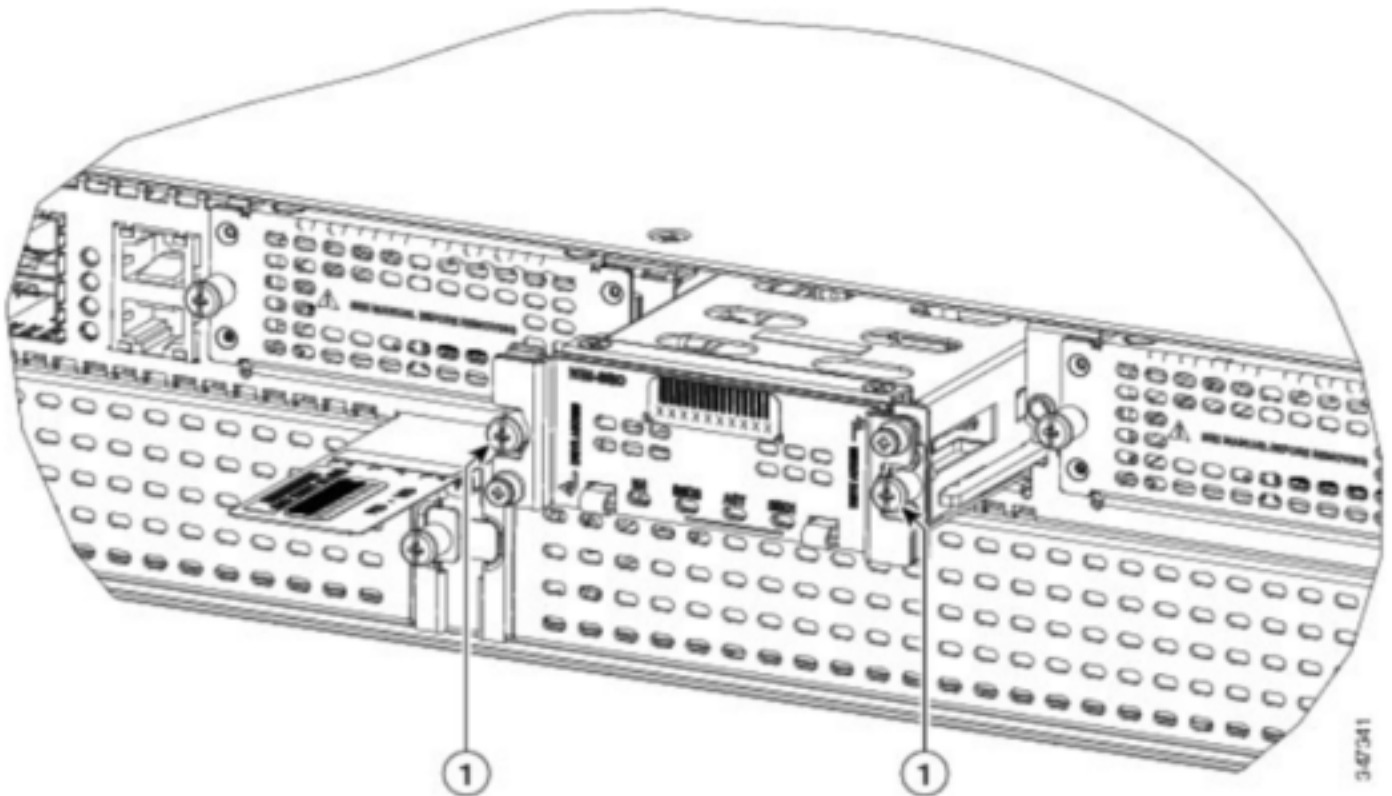
Para remover o NIM-SSD ou NIM-HDD do Roteador, siga estas etapas:

Etapa 1. Use uma chave de fenda Phillips para afrouxar os parafusos prisioneiros de ambos os lados, como mostrado nesta imagem:



1 Captive screws holding the NIM-SSD to the router

Etapa 2. Remova o NIM-SSD ou NIM-HDD da rota, como mostrado nesta imagem:



1 Captive screws holding the NIM-SSD to the router

ISR-SSD

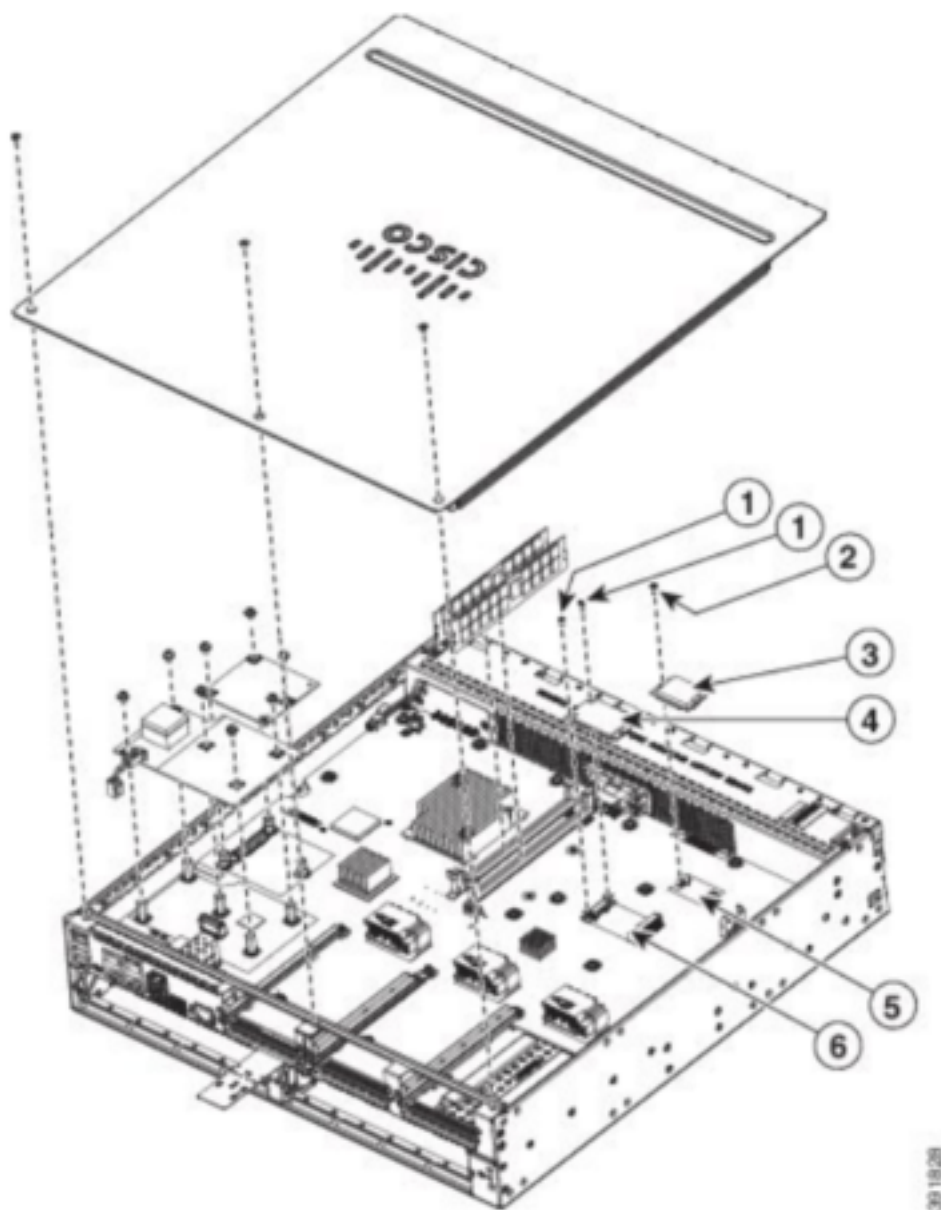
O ISR-SSD, por outro lado, está instalado dentro do chassi do roteador, você precisa desligar o roteador, abrir sua tampa para localizar o ISR-SSD.

O ISR-SSD não pode ser trocado a quente.

Este é o PID do ISR-SSD na série ISR 4300 que pode ser usado para aumentar a RMA:

SSD-MSATA-200G(=)200 GB, mSATA Solid State Disk

Esta imagem mostra a placa de memória flash e os locais dos dispositivos de armazenamento SSD mSATA :



1	Supplied screw	2	Supplied screw
3	Flash memory card	4	SSD mSATA storage device
5	Flash memory card connector	6	SSD mSATA connector

Instalação do ISR-WAAS

Depois de atender a todos os requisitos para a instalação do ISR-WAAS, a próxima etapa é baixar um arquivo OVA (Open Virtualization Appliance) da versão ISR-WAAS que você pretende implantar. Você pode fazer o download do software neste link:

<https://software.cisco.com/download/home/280484571/type/280836712>

Depois de fazer o download do software, você precisa transferir o arquivo para o flash de inicialização do roteador :

```
BR1-ISR4451#dir bootflash: | in .ova
81929  -rw-      986142720   Feb 1 2016 18:21:13 +12:00  ISR-WAAS-5.5.5a.9.ova
540682 -rw-      1057904640  May 10 2018 16:55:58 +11:00  ISR-WAAS-6.4.1a.6.ova
147457 -rw-      1002700800  Aug 20 2018 16:27:43 +11:00  ISR-WAAS-6.2.3e.45.ova
278534 -rw-      1009551360  Aug 8 2018 17:56:57 +11:00  ISR-WAAS-6.2.3d.68.ova
BR1-ISR4451#
```

Na CLI do roteador, siga estas etapas para implantar o ISR-WAAS usando o programa EZConfig:

1. Execute o comando Service WAAS enable.
2. Selecione a imagem .ova transferida anteriormente para a versão do WAAS que você deseja implantar.
3. Selecione o perfil WAAS que deseja implantar.
4. Configure o endereço IP do ISR-WAAS.
5. Configure o endereço IP do gerenciador central do WAAS.

```
BR1-ISR4451#service waas enable
*****
****  Entering WAAS service interactive mode.          ****
****  You will be asked a series of questions, and your answers  ****
****  will be used to modify this device's configuration to      ****
****  enable a WAAS Service on this router.              ****
*****

Continue? [y]: y
At any time: ? for help, CTRL-C to exit.
Select a WAAS image to install:
1. bootflash:/ISR-WAAS-5.5.5a.9.ova
2. bootflash:/ISR-WAAS-6.4.1a.6.ova
3. bootflash:/ISR-WAAS-6.2.3e.45.ova
4. bootflash:/ISR-WAAS-6.2.3d.68.ova
5. Enter your own image
Select option [3]: 3
Extracting profiles from bootflash:/ISR-WAAS-6.2.3e.45.ova, this may take a couple of minutes ...
These are the available profiles
1. ISR-WAAS-2500
2. ISR-WAAS-1300
3. ISR-WAAS-750
Select option [1]: 3
An internal IP interface and subnet is required to deploy a WAAS service on this router.
This internal subnet must contain two usable IP addresses that can route and communicate with the WAAS Central Manager (WCM).
The following ip address type supported for ISR-WAAS
1) ipv4
2) ipv6
Select ip address type (1 or 2):1
Enter the IPV4 address to be configured on the WAAS service: 10.66.86.44
The following ip address type supported for Host on Router
1) ipv4
2) ipv6
Select ip address type (1 or 2):1
The following ip address type for WCM
1) ipv4
2) ipv6
Select ip address type (1 or 2):1
Enter the IP address of the WAAS Central Manager (WCM): 10.66.86.106
```

6. Selecione a interface da rede de longa distância (WAN) no roteador onde você gostaria de ativar a interceptação do WAAS.
7. Salve a configuração depois de terminar. Esta é a imagem de uma instalação bem-sucedida.

```

*****
** Configuration Summary: **
*****
a) WAAS Image and Profile Size:
  bootflash:/ISR-WAAS-6.2.3e.45.ova (1002700800) bytes
  ISR-WAAS-750

b) Router IP/mask:
  Using ip unnumbered from interface GigabitEthernet0/0/2

  WAAS Service IP:
  10.66.86.44

c) WAAS Central Manager:
  10.66.86.106

d) Router WAN Interfaces:
  GigabitEthernet0/0/0

Choose one of the letter from 'a-d' to edit, 'v' to view config script, 's' to apply config [s]: s
The configuration will be applied and the status of the WAAS service will be displayed after deployment

Installing bootflash:/ISR-WAAS-6.2.3e.45.ova

Installing!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

% Activating virtual-service 'AUTOWAAS', this might take a few minutes. Use 'show virtual-service list' for progress.

System is attempting to deploy and activate WAAS image, this may take up to 10 minutes
activating!!!!!!!!!!

Waiting for WAAS application to be at a stage to accept WCM IP configuration.

Waiting!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!
management services enabled

WAAS service activated!
Note:Please issue "copy running-config startup-config" command to save changes!

```

Solucionar problemas do ISR-WAAS

Cenário de falha de instalação do WAAS

A instalação do ISR-WAAS falhará se não houver SSD, então primeiro verifique se o SSD está presente.

```

GigabitEthernet0/1/0 unassigned YES unset down down
GigabitEthernet0/1/1 unassigned YES unset down down
GigabitEthernet0/1/2 unassigned YES unset down down
GigabitEthernet0/1/3 unassigned YES unset down down
ucse1/0/0 10.66.86.34 YES unset administratively down down
ucse1/0/1 unassigned YES NVRAM administratively down down
GigabitEthernet0 unassigned YES NVRAM administratively down down
Dialer0 unassigned YES unset up up
Dialer1 unassigned YES unset up up
Loopback200 unassigned YES unset up up
Tunnel0 10.66.86.61 YES unset up up
VirtualPortGroup31 10.66.86.41 YES unset down down
Vlan1 unassigned YES NVRAM administratively down down
Enter a WAN interface to enable WAAS interception (blank to skip) []: GigabitEthernet0/0/0
Enter additional WAN interface (blank to finish) []:
*****
** Configuration Summary: **
*****
a) WAAS Image and Profile Size:
  bootflash:/ISR-WAAS-6.2.3e.45.ova (1002700800) bytes
  ISR-WAAS-750

b) Router IP/mask:
  Using ip unnumbered from interface GigabitEthernet0/0/2
  WAAS Service IP:
  10.66.86.44

c) WAAS Central Manager:
  10.66.86.106

d) Router WAN Interfaces:
  GigabitEthernet0/0/0

Choose one of the letter from 'a-d' to edit, 'v' to view config script, 's' to apply config [s]: s
The configuration will be applied and the status of the WAAS service will be displayed after deployment
installation failure decision to exit
R01_TSP4451#

```

Cenário de falha de ativação de ISR-WAAS

Em alguns cenários, o ISR-WAAS falhará ao ser ativado depois que você tiver substituído o roteador e instalado o SSD no novo chassi.

Esses erros podem ser vistos no roteador ISR :

```
09/16 11:44:08.946 [vman]: [31298]: (note): VM (AUTOWAAS) State Transition: next_state:
LIFECYCLE_DEACTIVATE

09/16 11:44:17.613 [vman]: [31298]: (ERR): Loading of machine definition (/vol/harddisk/virtual-
instance/AUTOWAAS/ISR4331X.xml) failed

09/16 11:44:17.613 [vman]: [31298]: (ERR): Failed to load machine definition

09/16 11:44:17.613 [vman]: [31298]: (note): Setting failure response (1)

09/16 11:44:17.613 [vman]: [31298]: (ERR): Virtual Service failure
log[AUTOWAAS]::Validation::Package validation::Failed to process package-def file::File
'/vol/harddisk/virtual-instance/AUTOWAAS/ISR4331X.xml'

09/16 11:44:17.613 [errmsg]: [31298]: (ERR): %VMAN-3-PROCESS_PKG_DEF: Virtual
Service[AUTOWAAS]::Validation::Package validation::Failed to process package-def file::File
'/vol/harddisk/virtual-instance/AUTOWAAS/ISR4331X.xml'

09/16 11:44:17.613 [vman]: [31298]: (note): VM (AUTOWAAS) State Transition: next_state:
LIFECYCLE_WAIT_ACTIVATE

09/16 11:44:17.613 [vman]: [31298]: (note): IF MTU message received:

09/16 11:44:17.613 [vman]: [31298]: (ERR): Invalid bridge ID or the bridge(31) has not been
created yet

09/16 11:44:17.614 [vman]: [31298]: (ERR): Failed to set DP IF mtu for DP bridge 31

09/16 11:44:17.614 [vman]: [31298]: (note): vman IF MTU message processed

09/16 11:44:24.725 [vman]: [31298]: (note): Get local RP location rp/0/0

09/16 11:44:27.758 [vman]: [31298]: (note): Get local RP location rp/0/0

09/16 11:44:27.759 [vman]: [31298]: (note): Get local RP location rp/0/0

09/16 11:44:27.772 [vman]: [31298]: (note): Get local RP location rp/0/0

09/16 11:44:27.779 [vman]: [31298]: (note): Get local RP location rp/0/0

09/16 11:44:27.779 [vman]: [31298]: (note): Successfully removed VM init ctx for VM [AUTOWAAS]

09/16 11:44:27.780 [vman]: [31298]: (note): Per-VM message marshalled successfully into
persistent DB

09/16 11:44:27.780 [vman]: [31298]: (note): Successfully reset per-VM mac address binding into
TDL msg

09/16 11:44:28.063 [vman]: [31298]: (ERR): vman_libvirt_err: code=1

09/16 11:44:28.063 [vman]: [31298]: (ERR): internal error '/usr/sbin/lvremove -f
/dev/lvm_raid/vdc.AUTOWAAS' exited with non-zero status 5 and signal 0: /dev/harddisk1: read
failed after 0 of 4096 at 21474770944: Input/output error
```

/dev/harddisk1: read failed after 0 of 4096 at 21474828288: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 0: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4429119488: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4429176832: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 0: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 11072897024: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 11072954368: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 0: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-3: read failed after 0 of 4096 at 1630
09/16 11:44:28.063 [vman]: [31298]: (ERR): Failed to delete volume vdc.AUTOWAAS in pool virt_strg_pool_vg
09/16 11:44:28.241 [vman]: [31298]: (ERR): vman_libvirt_err: code=1
09/16 11:44:28.241 [vman]: [31298]: (ERR): internal error '/usr/sbin/lvremove -f /dev/lvm_raid/vdb.AUTOWAAS' exited with non-zero status 5 and signal 0: /dev/harddisk1: read failed after 0 of 4096 at 0: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 0: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 0: Input/output error
/dev/dm-3: read failed after 0 of 4096 at 0: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 21474770944: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 21474828288: Input/output error
/dev/harddisk1: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4429119488: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4429176832: Input/output error
/dev/dm-1: read failed after 0 of 4096 at 4096: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 11072897024: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 11072954368: Input/output error
/dev/dm-2: read failed after 0 of 4096 at 4096: I
09/16 11:44:28.241 [vman]: [31298]: (ERR): Failed to delete volume vdb.AUTOWAAS in pool virt_strg_pool_vg
09/16 11:44:28.418 [vman]: [31298]: (ERR): vman_libvirt_err: code=1
09/16 11:44:28.418 [vman]: [31298]: (ERR): internal error '/usr/sbin/lvremove -f


```
/dev/lvm_raid/vda.AUTOWAAS' exited with non-zero status 5 and signal 0: /dev/harddisk1: read failed after 0 of 4096 at 0: Input/output error
```

```
/dev/dm-1: read failed after 0 of 4096 at 0: Input/output error
```

```
/dev/dm-2: read failed after 0 of 4096 at 0: Input/output error
```

```
/dev/dm-3: read failed after 0 of 4096 at 0: Input/output error
```

```
/dev/harddisk1: read failed after 0 of 4096 at 21474770944: Input/output error
```

```
/dev/harddisk1: read failed after 0 of 4096 at 21474828288: Input/output error
```

```
/dev/harddisk1: read failed after 0 of 4096 at 4096: Input/output error
```

```
/dev/dm-1: read failed after 0 of 4096 at 4429119488: Input/output error
```

```
/dev/dm-1: read failed after 0 of 4096 at 4429176832: Input/output error
```

```
/dev/dm-1: read failed after 0 of 4096 at 4096: Input/output error
```

```
/dev/dm-2: read failed after 0 of 4096 at 11072897024: Input/output error
```

```
/dev/dm-2: read failed after 0 of 4096 at 11072954368: Input/output error
```

```
/dev/dm-2: read failed after 0 of 4096 at 4096: I
```

```
09/16 11:44:28.418 [vman]: [31298]: (ERR): Failed to delete volume vda.AUTOWAAS in pool virt_strg_pool_vg
```

```
09/16 11:44:28.420 [vman]: [31298]: (note): Found orphaned volume(vda.AUTOWAAS) in pool(virt_strg_pool_vg). Deleting...
```

É possível que o disco rígido esteja corrompido e essas ações possam ser tomadas:

```
# show platform hardware subslot <ssd subslot> module device filesystem
```

```
# request platform hardware filesystem harddisk: destroy
```

```
# hw-module subslot 0/5 reload
```

Cenário de falha de SSD

Em alguns casos, se o SSD estiver com defeito, enquanto você executa comandos relacionados ao disco rígido e ao sistema de arquivos, você vê esses erros.

```
"request platform hardware filesystem harddisk: destroy"  
%This operation can take some time, please be patient  
%Harddisk not present. Destroy filesystem aborted.
```

Para resolvê-lo, você pode tentar as seguintes etapas:

Etapa 1. Tente recolocar a SSD.

Etapa 2. Reinicialize o roteador.

Etapa 3. Se essas etapas falharem, apenas RMA o SSD.